

The Claims

Having described the invention, the following is claimed:

1. A method of performing surgery on a patient's knee including a femur and a tibia, the method comprising the steps of:
 - making an incision in a knee portion of a leg of the patient;
 - positioning a cutting guide through the incision and on a side surface of a distal end portion of the femur;
 - moving a cutting tool through the incision into engagement with a guide surface on the cutting guide;
 - cutting the femur by moving the cutting tool along the guide surface, wherein the cutting guide is positioned free of an extramedullary or intramedullary alignment rod.
2. The method of claim 1 wherein the side surface is a medial side of the distal end portion of the femur.
3. The method of claim 1 wherein the side surface is a lateral side of the distal end portion of the femur.
4. The method of claim 1 wherein a computer navigation system is used in the positioning step.
5. The method of claim 1 wherein the positioning step includes removably attaching the cutting guide to the side surface of the distal end portion of the femur.

6. The method of claim 5 wherein the cutting guide is removably attached with first and second pins extending through holes in the cutting guide and into the femur.

7. The method of claim 1 wherein the guide surface comprises a plurality of straight guide segments.

8. The method of claim 7 wherein the plurality of straight guide segments comprises:

- a distal guide segment disposed in a plane which extends perpendicular to a longitudinal central axis of the femur and extends through lateral and medial condyles of the femur;

- an anterior chamfer guide segment disposed in a plane which extends at an acute angle to a plane containing the distal guide surface;

- a posterior chamfer guide segment disposed in a plane which extends at an acute angle to a plane containing the distal guide surface, the plane containing the posterior chamfer guide surface extending perpendicular to the plane containing the anterior chamfer guide surface;

- an anterior guide segment disposed in a plane which extends perpendicular to a plane containing the distal guide surface and extends generally parallel to a longitudinal central axis of the femur; and

- a posterior guide surface disposed in a plane which extends parallel to a plane containing the anterior guide surface and perpendicular to a plane containing the distal guide surface.

9. The method of claim 1 further comprising the step of removing at least a portion of the side surface prior to positioning the cutting guide such that a flattened section of the side surface is created and abuttingly engaged by a major side surface of the cutting guide when the cutting guide is positioned thereon.

10. The method of claim 1 wherein said step of cutting the femur includes utilizing the guide surface on the cutting guide to guide the cutting tool during making of an initial portion of a cut in the femur, and completing the cut in the femur while guiding the cutting tool with a surface formed during making of the initial portion of the cut in the femur.
11. The method of claim 10 wherein the cutting guide is positioned on the side surface of the distal end portion of the femur during completion of the cut.
12. The method of claim 10 wherein the cutting guide is removed from the side surface of the distal end portion of the femur after making the initial portion of the cut and before completion of the cut.
13. A total knee replacement cutting guide for forming a cut surface on a bone in preparation to receive a total joint replacement component comprising:
 - a guide member having a body configured and dimensioned for attachment to a side surface of an end portion of the bone free of an extramedullary or intramedullary alignment rod; and
 - at least one guide surface extending from one side of the guide member to an opposite side of the guide member, the at least one guide surface configured and dimensioned for engagement with a cutting tool to thereby direct the cutting tool in making only a portion of the cut surface.
14. The total knee replacement cutting guide of claim 13 wherein the guide member attaches to either a medial or lateral side surface of the end portion of the bone.
15. The total knee replacement cutting guide of claim 13 wherein the at least one guide surface includes a distal end surface having opposite ends spaced

apart by a distance which is less than a distance that the total joint replacement component extends across the bone when implanted.

16. The total knee replacement cutting guide of claim 15 wherein the guide member has an aperture for receiving a pin to thereby secure the guide member to the bone.

17. The total knee replacement cutting guide of claim 16 wherein the at least one guide surface includes:

- an anterior chamfer guide segment disposed in a plane which extends at an acute angle to a plane containing the distal guide surface;

- a posterior chamfer guide segment disposed in a plane which extends at an acute angle to a plane containing the distal guide surface, the plane containing the posterior chamfer guide surface extending perpendicular to the plane containing the anterior chamfer guide surface;

- an anterior guide segment disposed in a plane which extends perpendicular to a plane containing the distal guide surface and extends generally parallel to a longitudinal central axis of the femur; and

- a posterior guide surface disposed in a plane which extends parallel to a plane containing the anterior guide surface and perpendicular to a plane containing the distal guide surface.

18. The total knee replacement cutting guide of claim 16 wherein the cutting guide is a non-captured cutting guide.

19. A method of performing surgery on a joint in a patient including a first bone and a second bone, the method comprising the steps of:

- making an incision proximal to the joint in the patient;

- positioning a cutting guide through the incision and on a side surface of an end portion of the first bone;

moving a cutting tool through the incision into engagement with a guide surface on the cutting guide;

cutting the first bone by moving the cutting tool along the guide surface, wherein the cutting guide is positioned free of an extramedullary or intramedullary alignment rod.

20. The method of claim 19 wherein the side surface is a medial side of the end portion of the first bone.

21. The method of claim 19 wherein the side surface is a lateral side of the end portion of the first bone.

22. The method of claim 19 wherein a computer navigation system is used in the positioning step.

23. The method of claim 19 wherein the positioning step includes removably attaching the cutting guide to the side surface of the end portion of the first bone.

24. The method of claim 23 wherein the cutting guide is removably attached with first and second pins extending through holes in the cutting guide and into the first bone.

25. The method of claim 19 wherein the guide surface comprises a plurality of straight guide segments.

26. The method of claim 25 wherein the plurality of straight guide segments comprises:

a distal guide segment disposed in a plane which extends perpendicular to a longitudinal central axis of the first bone;

an anterior chamfer guide segment disposed in a plane which extends at an acute angle to a plane containing the distal guide surface;

a posterior chamfer guide segment disposed in a plane which extends at an acute angle to a plane containing the distal guide surface, the plane containing the posterior chamfer guide surface extending perpendicular to the plane containing the anterior chamfer guide surface;

an anterior guide segment disposed in a plane which extends perpendicular to a plane containing the distal guide surface and extends generally parallel to a longitudinal central axis of the first bone; and

a posterior guide surface disposed in a plane which extends parallel to a plane containing the anterior guide surface and perpendicular to a plane containing the distal guide surface.

27. The method of claim 19 further comprising the step of removing at least a portion of the side surface prior to positioning the cutting guide such that a flattened section of the side surface is created and abuttingly engaged by a major side surface of the cutting guide when the cutting guide is positioned thereon.

28. The method of claim 19 wherein said step of cutting the first bone includes utilizing the guide surface on the cutting guide to guide the cutting tool during making of an initial portion of a cut in the first bone, and completing the cut in the first bone while guiding the cutting tool with a surface formed during making of the initial portion of the cut in the first bone.

29. The method of claim 28 wherein the cutting guide is positioned on the side surface of the end portion of the first bone during completion of the cut.

30. The method of claim 29 wherein the cutting guide is removed from the side surface of the end portion of the first bone after making the initial portion of the cut and before completion of the cut.